RID Draft Update
Migrating to IODEF

Kathleen M. Moriarty

IETF INCH Working Group

04 March 2004

"Opinions, interpretations, conclusions, and recommendations are those of the author and are not necessarily endorsed by the United States Government."

MIT Lincoln Laboratory

Report Documentation Page		*Form Approved* *OMB No. 0704-0188*

Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

1. REPORT DATE **04 MAR 2004**	2. REPORT TYPE		3. DATES COVERED **00-00-2004 to 00-00-2004**	
4. TITLE AND SUBTITLE **RID Draft Update Migrating to IODEF**			5a. CONTRACT NUMBER	
			5b. GRANT NUMBER	
			5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)			5d. PROJECT NUMBER	
			5e. TASK NUMBER	
			5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) **Massachusetts Institute of Technology,Lincoln Laboratory,244 Wood Street,Lexington,MA,02420-9108**			8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)			10. SPONSOR/MONITOR'S ACRONYM(S)	
			11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT **Approved for public release; distribution unlimited**				
13. SUPPLEMENTARY NOTES				
14. ABSTRACT				
15. SUBJECT TERMS				

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT **unclassified**	b. ABSTRACT **unclassified**	c. THIS PAGE **unclassified**	**Same as Report (SAR)**	**8**	

Standard Form 298 (Rev. 8-98)
Prescribed by ANSI Std Z39-18

RID Updates

- **Purpose**
- **RID and INCH**
- **Messaging Format Changes**
  - **Packet based to XML**
- **Define Extensions to IODEF Model**
- **Communication Mechanism for RID Documents**
- **Security Considerations**
 - **Consortiums**
  - **Privacy**

Real-time Inter-network Defense (RID)

- **Trace Security Incidents to the Source**
- **Stop or Mitigate the Effects of an Attack or Security Incident**
- **Facilitate Communications between Network Providers**
- **Integrate with existing and future network components**
  - **Systems to trace traffic across a network**
    - **NetFlow, Hash Based IP Traceback, IP Marking, etc.**
    - **Intrusion Detection Systems**
    - **Network devices such as routers and firewalls**
- **Provide secure means to communicate RID messages**
  - **Consortiums agree upon use and abuse guidelines**
  - **Consortiums provide a key exchange method**
    - **Trusted PKI, certificate repository, cross certifications**

RID and INCH

- **RID is used to communicate security incident handling information between CSIRTs or NPs**
- **RID carries much of the same data as an IODEF document**
- **RID requires a few additional data elements**
- **Communication and proper transport of messages is in the RID specification**
- **RID is now reformatted to use the IODEF specification**
  - **Packet based format to IODEF document**
- **RID message types**
  - **Noted in a SOAP wrapper to an XML IODEF document**
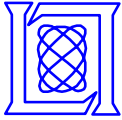
RID Extensions to IODEF

- **AdditionalData Class from IODEF used to define Extensions**
  - **IPPacket Class**
    - Allows hex packets to be stored in the RID message in a format that will be expected by the recipient of a RID message
    - Multiple packets may be sent in a single message
  - **NPPath Class**
    - Purpose is to identify the path of the trace and to avoid loops
  - **TraceStatus Class**
    - Method for providing approval status from upstream peer after a trace request is made

Communicating RID Messages

- **SOAP Messaging Wrapper and XML Security**
  - **Method to transport messages**
  - **Provide integrity, authentication, authorization**
  - **XML digital signature, encryption, and public key infrastructure**
- **Public Key Infrastructure**
  - **Provided by consortiums linking network providers for RID messaging**
- **Message Types**
  - **Trace Request**
  - **Trace Authorization**
  - **Source Found**
  - **Relay Request**
- **RID Systems Must Track the Requests by**
  - **Incident Number**
  - **Packet Contents**
  - **Completion Status**

Security Considerations

- **Consortiums**
  - Agreements between entities involved in RID peering
  - Provide a secure key exchange repository/system (PKI)
  - Peering agreements and policies between consortiums and across national boundaries or jurisdictions
- **System use guidelines**
  - Privacy considerations
  - Abuse policies
  - Use policies may vary across national network or consortium boundaries
    - Automated method to allow enforcement of use agreements
- **RID server security policies**
  - Network based access controls
  - Hardened systems
- **Communication security considerations for the exchange of RID messages and the underlying protocols**

Summary

- **Many updates from the previous version**
  - **Moved from packet based format to a solution based on IODEF documents**
  - **Extended the AdditionalData Class to accommodate the needs of RID messaging**
  - **Security will use XML Digital Signature and XML Encryption**
  - **PKI at the core of the security model, but provided by a consortium**
  - **Topology examples to address implementers questions**
  - **Extended information on system use and privacy considerations**
- **Near Future Update will include**
  - **SOAP wrapper and more information on XML Security**
  - **Further specifications on automating a flag for system use adherence guidelines**
  - **May include additional examples of other message types**
  - **Any suggested revisions or clarifications**
- **http://www.ietf.org/internet-drafts/draft-moriarty-ddos-rid-05.txt**